



检测报告

Test Report

报告编号 A2260098029101005E
Report No. A2260098029101005E

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报告抬头公司名称 昆山优尼凯半导体材料有限公司
Company Name KUNSHAN UNICHEM SEMICONDUCTOR MATERIALS CO.,LTD.
shown on Report
地 址 中国江苏省昆山市巴城镇通澄路382号
Address NO.382 TONGCHENG ROAD KUNSHAN CITY JIANGSU PROVINCE CHINA

以下测试之样品及样品信息由申请者提供并确认

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant

样品名称	锡球
Sample Name	PURE TIN ANODE BALL
样品型号	99.99%
Model No.	99.99%
样品颜色	银色
Color	Silvery
样品接收日期	2026.02.03
Sample Received Date	Feb. 3, 2026
样品检测日期	2026.02.03-2026.02.06
Testing Period	Feb. 3, 2026 to Feb. 6, 2026

检测要求 根据客户要求, 对所提交样品中的铅(Pb), 镉(Cd), 汞(Hg), 六价铬(Cr(VI)), 多溴联苯(PBBs), 多溴二苯醚(PBDEs), 邻苯二甲酸酯(DBP, BBP, DEHP, DIBP), 六溴环十二烷(HBCDD), 铍(Be), 锑(Sb), 氟(F), 氯(Cl), 溴(Br), 碘(I), 全氟辛酸(PFOA), 全氟辛烷磺酸(PFOS)进行测试。

Test Requested As specified by client, to test Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP), Hexabromocyclododecane (HBCDD), Beryllium(Be), Antimony(Sb), Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I), Perfluorooctanoic Acid(PFOA), Perfluorooctane Sulfonates(PFOS) in the submitted sample(s).

检测依据/检测结果 请参见下页。
Test Method/Test Result(s) Please refer to the following page(s).



Approved by

陈凯敏

陈凯敏
实验室经理 Lab Manager

日期
Date

2026.02.06

No. R268859341

上海市闵行区万芳路1351号

No.1351, Wanfang Road, Minhang District, Shanghai, China

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检测依据 Test Method

测试项目 Test Item(s)	测试方法 Test Method	测试仪器 Measured Equipment(s)
铅 Lead (Pb)	IEC 62321-5:2013	ICP-OES
镉 Cadmium (Cd)	IEC 62321-5:2013	ICP-OES
汞 Mercury (Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
六价铬 Hexavalent Chromium (Cr(VI))	IEC 62321-7-1:2015	UV-Vis
多溴联苯 Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
六溴环十二烷 Hexabromocyclododecane (HBCDD)	IEC 62321-9:2021	GC-MS
铍 Beryllium(Be)	参考US EPA 3050B:1996 & US EPA 6010D:2018* Refer to US EPA 3050B:1996 & US EPA 6010D:2018*	ICP-OES
锑 Antimony(Sb)	参考US EPA 3050B:1996 & US EPA 6010D:2018* Refer to US EPA 3050B:1996 & US EPA 6010D:2018*	ICP-OES
氟 Fluorine (F)	EN 14582:2016	IC
氯 Chlorine (Cl)	EN 14582:2016	IC
溴 Bromine (Br)	EN 14582:2016	IC
碘 Iodine (I)	EN 14582:2016	IC
全氟辛酸 Perfluorooctanoic Acid(PFOA)	参考EN 17681-1:2025* Refer to EN 17681-1:2025*	LC-MS-MS
全氟辛烷磺酸 Perfluorooctane Sulfonates(PFOS)	参考EN 17681-1:2025* Refer to EN 17681-1:2025*	LC-MS-MS

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检测结果 Test Result(s)

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	005	
铅 Lead (Pb)	18 mg/kg	2 mg/kg
镉 Cadmium (Cd)	N.D.	2 mg/kg
汞 Mercury (Hg)	N.D.	2 mg/kg
六价铬 Hexavalent Chromium (Cr(VI))	N.D. ▼	0.10 µg/cm ² (LOQ)
测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	005	
多溴联苯 Polybrominated Biphenyls (PBBs)		
一溴联苯 Monobromobiphenyl	N.D.	5 mg/kg
二溴联苯 Dibromobiphenyl	N.D.	5 mg/kg
三溴联苯 Tribromobiphenyl	N.D.	5 mg/kg
四溴联苯 Tetrabromobiphenyl	N.D.	5 mg/kg
五溴联苯 Pentabromobiphenyl	N.D.	5 mg/kg
六溴联苯 Hexabromobiphenyl	N.D.	5 mg/kg
七溴联苯 Heptabromobiphenyl	N.D.	5 mg/kg
八溴联苯 Octabromobiphenyl	N.D.	5 mg/kg
九溴联苯 Nonabromobiphenyl	N.D.	5 mg/kg
十溴联苯 Decabromobiphenyl	N.D.	5 mg/kg
测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	005	
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)		
一溴二苯醚 Monobromodiphenyl ether	N.D.	5 mg/kg
二溴二苯醚 Dibromodiphenyl ether	N.D.	5 mg/kg
三溴二苯醚 Tribromodiphenyl ether	N.D.	5 mg/kg
四溴二苯醚 Tetrabromodiphenyl ether	N.D.	5 mg/kg
五溴二苯醚 Pentabromodiphenyl ether	N.D.	5 mg/kg
六溴二苯醚 Hexabromodiphenyl ether	N.D.	5 mg/kg
七溴二苯醚 Heptabromodiphenyl ether	N.D.	5 mg/kg
八溴二苯醚 Octabromodiphenyl ether	N.D.	5 mg/kg
九溴二苯醚 Nonabromodiphenyl ether	N.D.	5 mg/kg
十溴二苯醚 Decabromodiphenyl ether	N.D.	5 mg/kg

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检测结果 Test Result(s)

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	005	
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)		
邻苯二甲酸二丁酯 Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	50 mg/kg
邻苯二甲酸丁基苄基酯 Butyl benzyl phthalate (BBP) CAS#:85-68-7	N.D.	50 mg/kg
邻苯二甲酸二(2-乙基)己酯 Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7	N.D.	50 mg/kg
邻苯二甲酸二异丁酯 Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	50 mg/kg
测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	005	
六溴环十二烷 Hexabromocyclododecane (HBCDD)	N.D.	20 mg/kg
测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	005	
铍 Beryllium (Be)	N.D.	10 mg/kg
锑 Antimony (Sb)	N.D.	10 mg/kg
测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	005	
氟 Fluorine (F)	N.D.	10 mg/kg
氯 Chlorine (Cl)	N.D.	10 mg/kg
溴 Bromine (Br)	N.D.	10 mg/kg
碘 Iodine (I)	N.D.	10 mg/kg
测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	005	
全氟辛酸 Perfluorooctanoic Acid (PFOA)	N.D.	0.01 mg/kg
测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
	005	
全氟辛烷磺酸 Perfluorooctane Sulfonates (PFOS)	N.D.	0.01 mg/kg

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样品/部位描述 Sample/Part Description

序号 No.	CTI样品ID CTI Sample ID	描述 Description
1	005	银色金属 Silvery metal

备注: 对于检测铅, 镉, 汞, 铍, 锑之样品已消解完全。

-N.D. = 未检出 (小于方法检出限或定量限)

-mg/kg = ppm = 百万分之一

-LOQ = 定量限, 六价铬的定量限为0.10 $\mu\text{g}/\text{cm}^2$

- ∇ 六价铬浓度小于0.10 $\mu\text{g}/\text{cm}^2$, 样品未检出六价铬。由于未获知样品的存储条件和生产日期, 样品的六价铬测试结果仅能代表测试时样品含六价铬的状态。

Remark: The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury, Beryllium, Antimony.

-MDL = Method Detection Limit

-N.D. = Not Detected (<MDL or LOQ)

-mg/kg = ppm = parts per million

-LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 $\mu\text{g}/\text{cm}^2$

- ∇ The sample is negative for Cr(VI) – The Cr(VI) concentration is below 0.10 $\mu\text{g}/\text{cm}^2$. The coating is considered a non-Cr(VI) based coating. Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

注释: 本报告中的数据结果供科研、教学、企业内部质量控制、企业产品研发等目的用。

“*”表示该方法不在CNAS认可范围内。

Note: The testing data and result(s) in this report is(are) just for scientific research, education, internal quality control and product development etc.

“*” indicates the method(s) is (are) not in CNAS accreditation scope.

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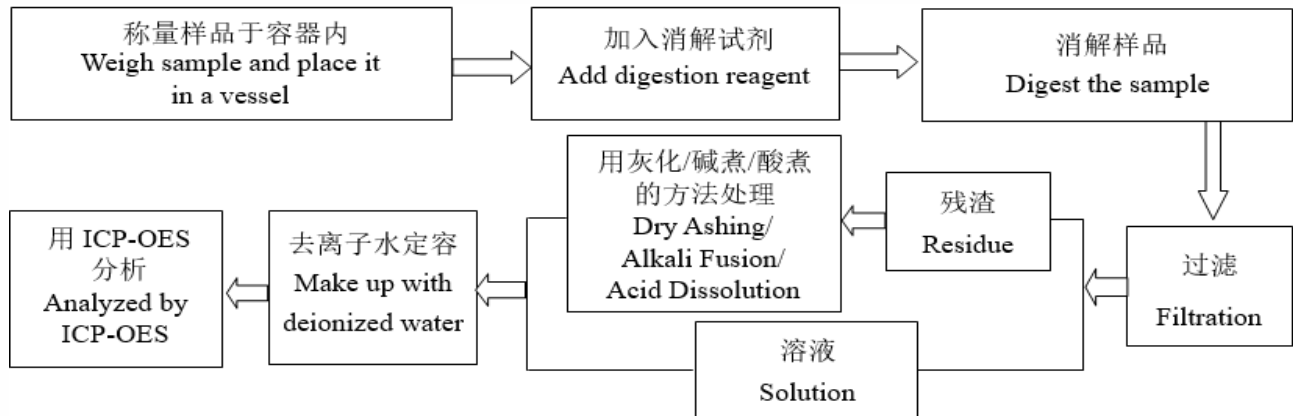
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检测流程 Test Process

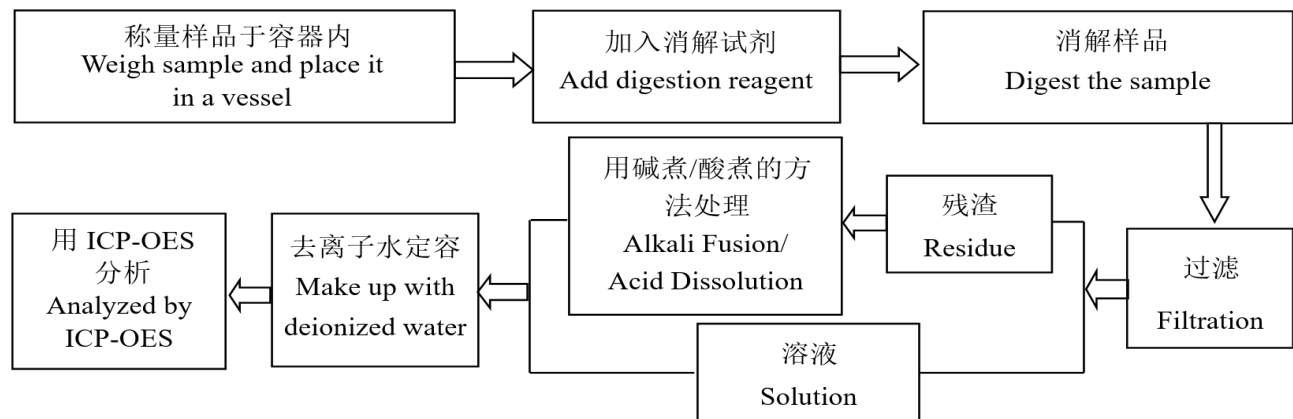
1. 铅(Pb), 镉(Cd)

Lead (Pb), Cadmium (Cd)



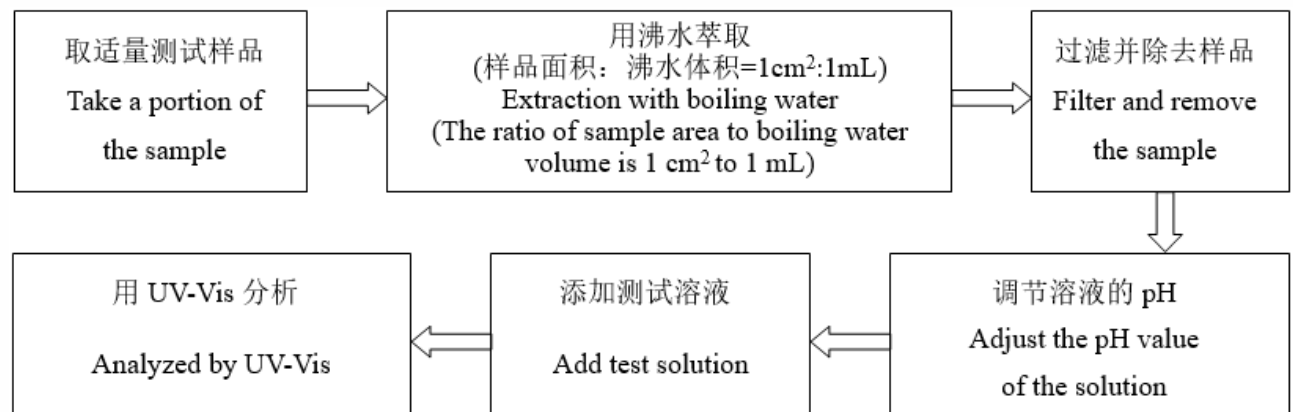
2. 汞(Hg)

Mercury (Hg)



3. 六价铬(Cr(VI))

Hexavalent Chromium (Cr(VI))



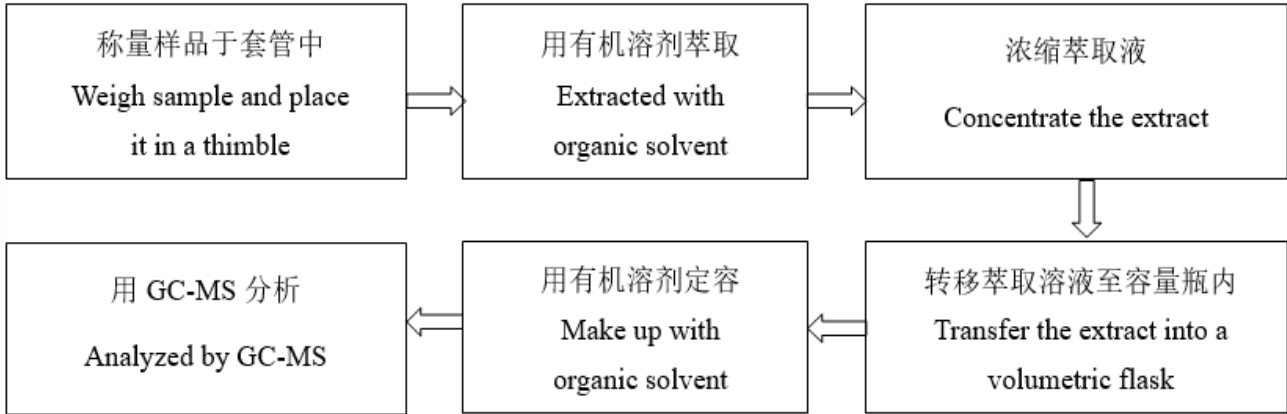
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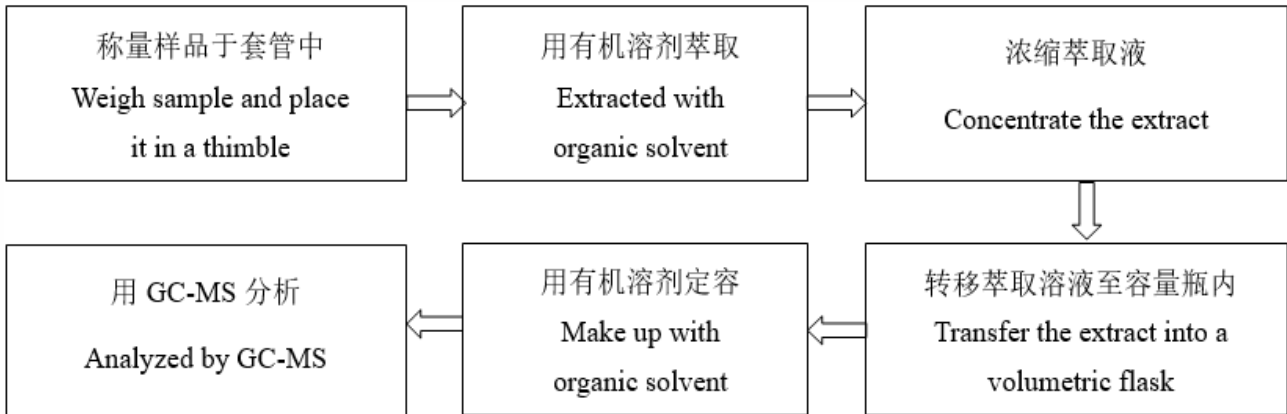
4. 多溴联苯(PBBs), 多溴二苯醚(PBDEs)

Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs)



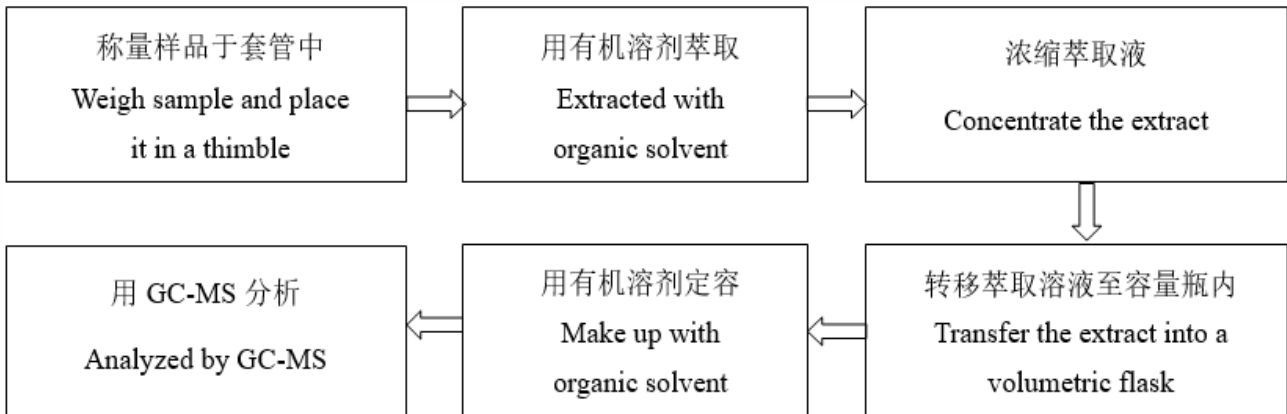
5. 邻苯二甲酸酯(DBP, BBP, DEHP, DIBP)

Phthalates (DBP, BBP, DEHP, DIBP)



6. 六溴环十二烷(HBCDD)

Hexabromocyclododecane (HBCDD)



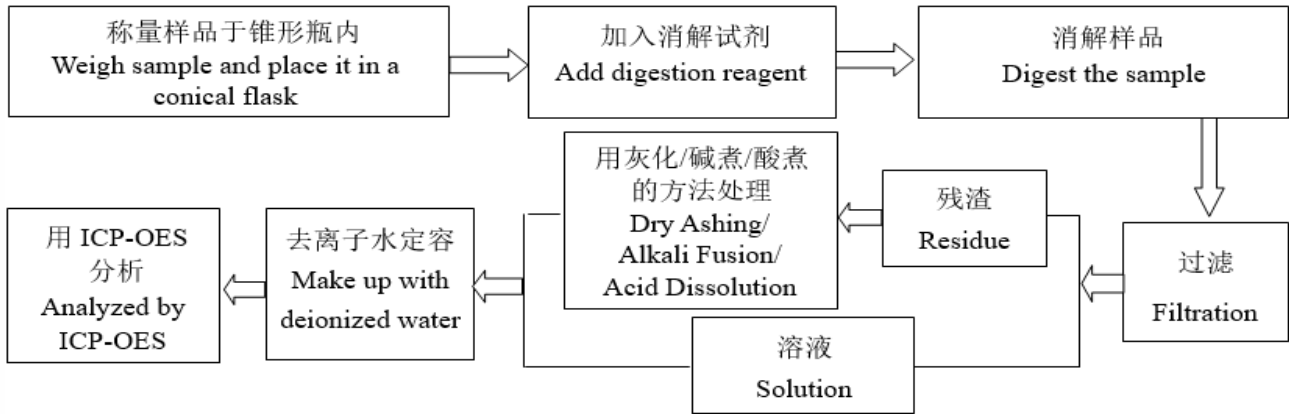
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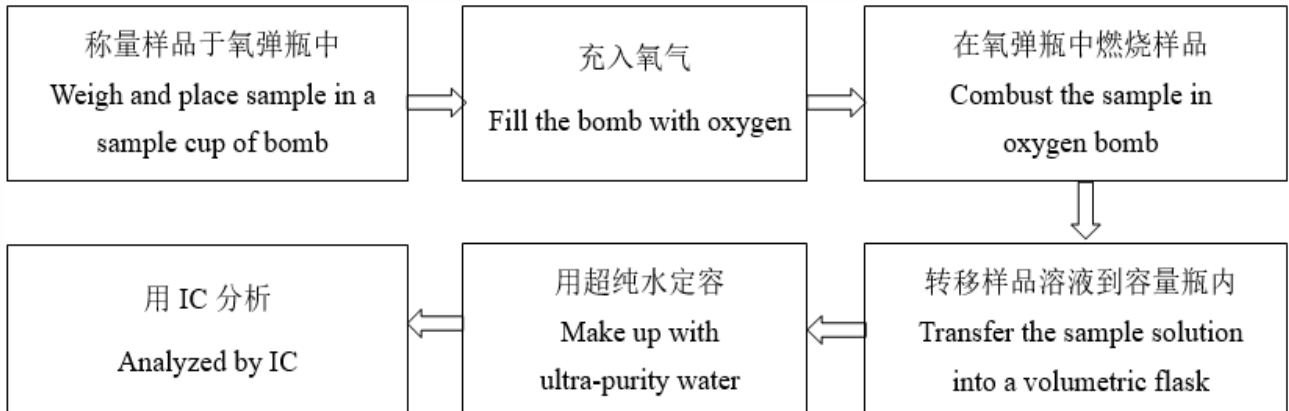
7. 铍(Be), 锑(Sb)

Beryllium(Be), Antimony(Sb)



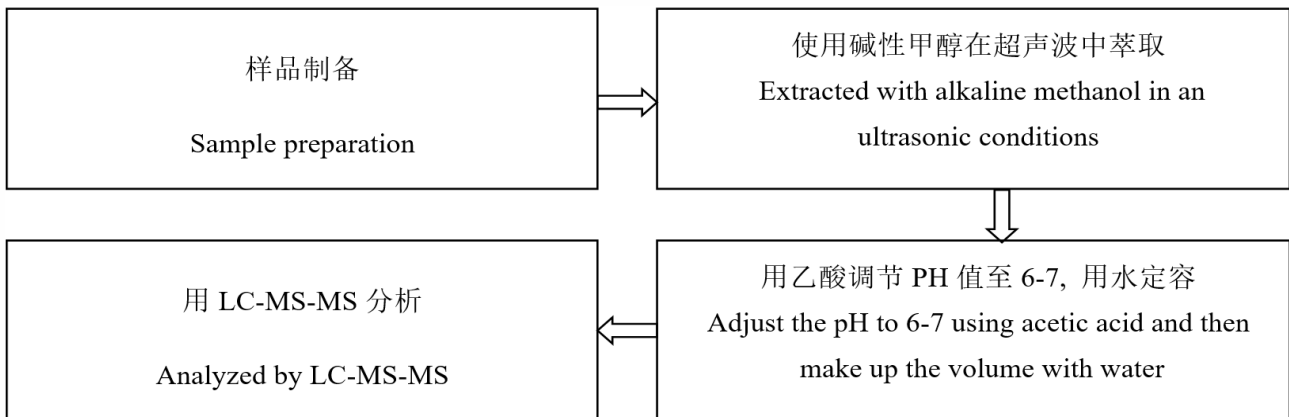
8. 氟(F), 氯(Cl), 溴(Br), 碘(I)

Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I)



9. 全氟辛酸(PFOA), 全氟辛烷磺酸(PFOS)

Perfluorooctanoic Acid(PFOA), Perfluorooctane Sulfonates(PFOS)



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样品图片 Photo(s) of the sample(s)



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The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. 本报告检测结果仅对受测样品负责;
The result(s) shown in this report refer(s) only to the sample(s) tested;
4. 除非另有说明, 报告参照ILAC-G8:09/2019 / CNAS-GL015:2022使用简单接受(w=0)二元判定规则进行符合性判定;
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报告结束

*** End of report ***